





(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 4 September 2003 (04.09.2003)

PCT

(10) International Publication Number WO 03/073550 A1

(51) International Patent Classification7:

(74) Agent: JEON, Jun-Young, E.; Christie, Parker & Hale

PCT/US03/05133 (21) International Application Number:

(22) International Filing Date: 21 February 2003 (21.02.2003)

(25) Filing Language:

English

H01P 1/203

(26) Publication Language:

English

(30) Priority Data:

60/358,898

22 February 2002 (22.02.2002)

(71) Applicant (for all designated States except US): ARI-ZONA BOARD OF REGENTS [US/US]; P.O. Box 873511, Tempe, AZ 85287-3511 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): Badawy [US/US]; 5120 East Hampton, Mesa, AZ 85206 LLP, Post Office Box 7068, Pasadena, CA 91109-7068 (US).

(81) Designated States (national): CA, JP, US.

(84) Designated States (regional): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR).

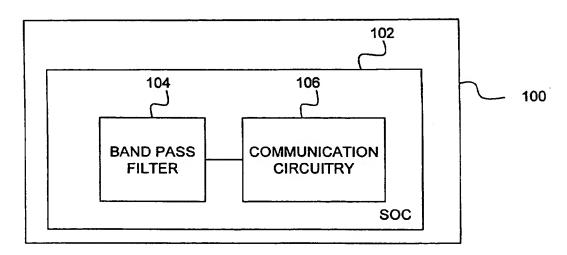
Published:

with international search report

before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: INTEGRATION OF FILTERS USING ON-CHIP TRANSFORMERS FOR RF AND WIRELESS APPLICATIONS



(57) Abstract: A band pass filter (114) is formed on an integrated circuit (IC) chip (102). Such band pass filter (114) may be used in the control of the co a transformer (202 and 204) made of a pair of metallic spirals formed on the IC chip. The metallic spirals may have substantially square or rectangular overall shape, and may be fabricated using copper. The metallic spirals may be co-planar and inter-wound or may be stacked, one on top of the other, and separated by a dielectric layer. The transformer (202 and 204) is capable of receiving an input signal, and providing high pass filtering to the input signal. The band pass filter (114) also includes a capacitor (226, 2; 8, 230 and 232) that is capable of receiving the input signal and providing low pass filtering in conjunction with an inductance of the transformer (202 and 204). The band pass filter (114) provides band pass filtering through cascading said high pass and low pass filtering.







International application No.

PCT/US03/05133

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : H 01P 1/203			
US CL : 156/250; 29/830; 257/259,E27.116.			
According to International Patent Classification (IPC) or to both national classification and IPC			
B. FIELDS SEARCHED			
Minimum documentation searched (classification system followed by classification symbols) U.S.: 156/250; 29/830; 257/259,E27.116.			
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched			
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) EAST search (USPAT, USPG, EPO, JPO, IBM, DERWENT)			
C. DOCUMENTS CONSIDERED TO BE RELEVANT			
Category *	Citation of document, with indication, where ap	propriate, of the relevant passages	Relevant to claim No.
Y.P	US 6,014,386 A (ABRAHAM), 11 January 2000 (11.01.2000), column 7, lines 52-67,		1-10, 12-30
Y,P	column 9, lines 3-49, column 10, lines 39-49, column 15, lines 25-57. US 6,045,893 A (FUKUSHIMA et al), 4 April 2000 (04.04.2000), column 1, lines 5-24,		
	column 4, lines 53-67. US 5,949,299 A (HARDA), 7 September 1999 (07.09.1999), column 2, lines 8-52		
Y,P	_05 5,949,299 A (HARDA), / September 1999 (07.0	9.1999),Column 2, tines 6-32	1,11-13,22
		· ·	·
Further	documents are listed in the continuation of Box C.	See patent family annex.	0
Special categories of cited documents:			e international filing date or priority
	defining the general state of the art which is not considered to be lar relevance	principle or theory underlying the	pplication but cited to understand the invention invention cannot be
"E" earlier app	plication or patent published on or after the international filing date		nsidered to involve an inventive step
	which may throw doubts on priority claim(s) or which is cited to the publication date of another citation or other special reason (as	considered to involve an inventiv	the claimed invention cannot be e step when the document is such documents, such combination
"O" document	referring to an oral disclosure, use, exhibition or other means	being obvious to a person skilled	in the art
	published prior to the international filing date but later than the late claimed	"&" document member of the same p	atent family
Date of the actual completion of the international search		Date of mailing of the international search report	
19 May 2003 (19.05.2003)		0.1 AUG 20	103
Name and mailing address of the ISA/US		Authorized officer	
Mail Stop PCT, Attn: ISA/US		Hsien Ming Lee	[] [] [] []
Commissioner for Patents P.O. Box 1450		// //	1 1/2000 Y 1/000
Alexandria, Virginia 22313-1450		Telephone No. 703/305-7341	Deborah P. Vega
Facsimile No. (703)305-3230			
Form PCT/ISA/210 (second sheet) (July 1998) Paralegal Specialist			
			hnology Center 280

Paralegal Specialist
Technology Center 2800
(703) 308-3078